The Global Atlas for Solar and Wind Energy

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Project Development for Renewable Energy Systems

no market few data

existing commerical market data and services available

Resources

Pr

The Atlas should support the first steps in potential assessment, policy development and project pre feasibility,

Engineering

Construction

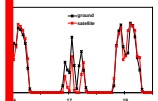
Commissioning

Operation

Pre feasibility

Feasibility

Engineering



- Finding suitable sites with high resolution maps and economic evaluations
- Detailed engineering with site specific data with high temporal resolution as input to simulation software

Possible Target Groups

- Policy makers, public agencies and governments
- Community for energy modeling and global impact assessment models
- NGO’s and academic institutes
- Industry and investors
- The general public
- Grid operators and utilities

Contents of the Global Atlas

- Resource data (Solar and Wind)
- Georeferenced environmental data
- Policy information
- Socio-economic data
- RE technology data
- Collaborative platform for exchange of best practices

Networking with Collaborative Information Systems

user interfaces

Data broker

data provider

Solar resources A (e.g. DLR)

data provider

Solar resources B (e.g. NREL

data provider

data provider

geographical data, land use, infrastructure, e.g. public agencies

Communication with open and standardized internet protocols

Policy data base
e.g. IEA, UNEP, REN21

set up of the architecture within the framework of GEOSS

Prospective Available Data

Open platform, everybody can bring in data

requirements:

benchmarking test
transparent methodology
has to pass review committee

Prospective Available Data

Solar

- Complete SWERA database (http://en.openei.org/apps/SWERA/)
  → *end of 2012*

- Solar Med Atlas (www.solar-med-atlas.com) → *end of 2012*
  (1km², 20 years, monthly & annual values, South-Mediterranean Region)

- NASA SSE 7.0 → *2013*
  (10km, monthly values GHI and DNI, world wide)

Wind

- RISOE wind data → *2014*
  (~2km, wind direction and Weibull distribution, world wide)

Prospective Available Data

Geography

- slope, land use, population, geomorphology, protected areas, streets ….
  → *2013*

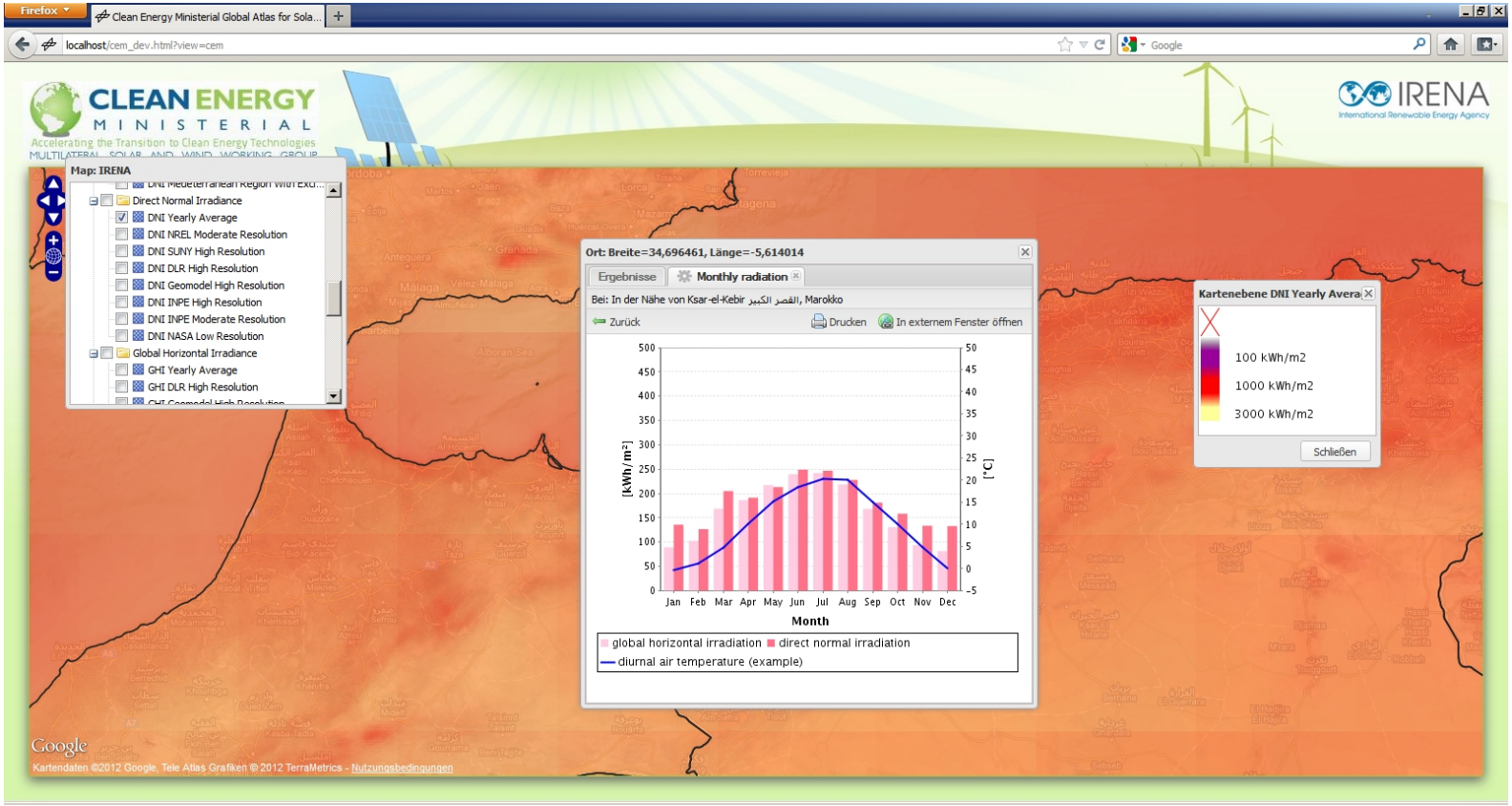
Policy and socio-economic

- REN21, REEGLE, worldbank → *end of 2012*

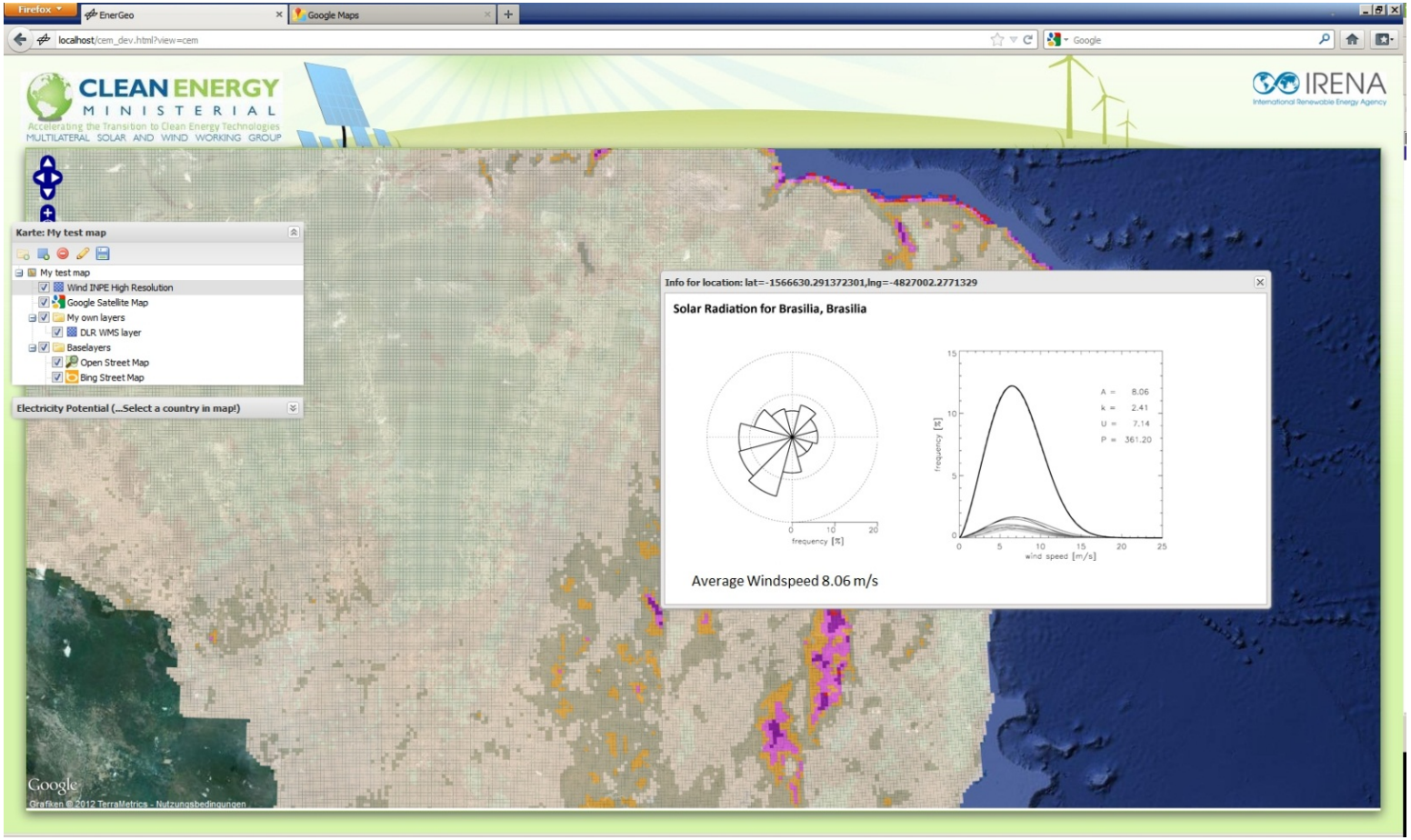
Prospective Available Functions

- Query → *end 2012*
- Exclusion Analysis → *2013*
- Ranking Analysis / Site Assessment (e.g. distance to infrastructure) → *2013*
- Potential Analysis (for different wind and solar technologies) → *2013*

Solar Data


Firefox
Clean Energy Ministerial Global Atlas for Sola...
localhost/cem_dev.html?view=cem
Google
CLEAN ENERGY MINISTERIAL
Accelerating the Transition to Clean Energy Technologies
MULTILATERAL SOLAR AND WIND WORKING GROUP
IRENA International Renewable Energy Agency
Map: IRENA
Direct Normal Irradiance
DNI Yearly Average
DNI NREL Moderate Resolution
DNI SUNY High Resolution
DNI DLR High Resolution
DNI Geomodel High Resolution
DNI INPE High Resolution
DNI INPE Moderate Resolution
DNI NASA Low Resolution
Global Horizontal Irradiance
GHI Yearly Average
GHI DLR High Resolution
Ort: Breite=34,696461, Länge=-5,614014
Ergebnisse
Monthly radiation
Bei: In der Nähe von Ksar-el-Kebir القصر الكبير, Marokko
Zurück
Drucken
In externem Fenster öffnen
[kWh/m²]
[°C]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Month
global horizontal irradiation
direct normal irradiation
diurnal air temperature (example)
Kartenebene DNI Yearly Avera
100 kWh/m2
1000 kWh/m2
3000 kWh/m2
Schließen
Google
Kartendaten ©2012 Google, Tele Atlas Grafiken © 2012 TerraMetrics - Nutzungsbedingungen

Wind Data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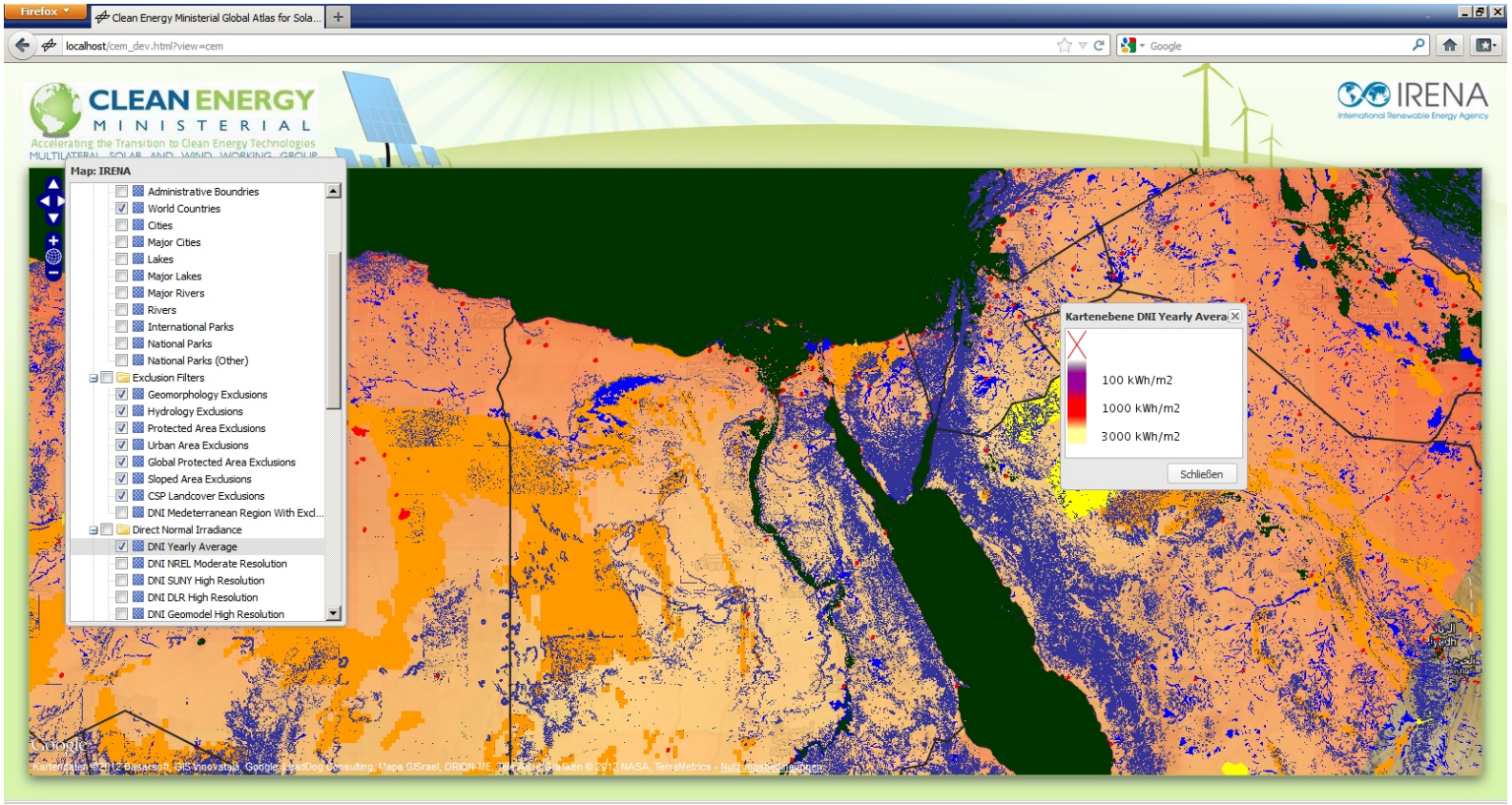
IRENA
International Renewable Energy Agency
Karte: My test map
My test map
Wind INPE High Resolution
Google Satellite Map
My own layers
DLR WMS layer
Baselayers
Open Street Map
Bing Street Map
Electricity Potential (...Select a country in map!)
Info for location: lat=-1566630.291372301,lng=-4827002.2771329
Solar Radiation for Brasilia, Brasilia
frequency [%]
wind speed [m/s]
A = 8.06
k = 2.41
U = 7.14
P = 361.20
Average Windspeed 8.06 m/s
Google
Grafiken © 2012 TerraMetrics - Nutzungsbedingungen

Selecting Sites with Exclusion Masks



Where to find ?

Atlas: http://stbgis.dlr.de/client/cem.html
(work in progress! prototype only!)

More Information: http://www.dlr.de/dlr/desktopdefault.aspx/tabid-10202/334_read-3379/

Partners

- IRENA
- DLR
- DTU/Wind (RISØ) - DK
- NREL - US
- Mines ParisTech – FR
- EU JRC
- Geomodel Solar – SK
- further national partner

Thank you for your attention!

For further questions please contact

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